MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES
STATE PUBLIC HEALTH LABORATORY
BREATH ALCOHOL PROGRAM

RECEIVED
By Carol Day at 11:54 am, Mar 30, 2015

INTOX EC/IR II MAINTENANCE REPORT

REPORT #3

Complete this report at the time of the regular monthly preventive maintenance check (not to exceed 35 days). Complete this report whenever the instrument is serviced or repaired and whenever it is placed into service. Retain the original and send a copy within 15 days to the Breath Alcohol Program, DHSS.

INTOX EC/IR II SN	NAME OF AGENCY	DATE OF INSPECTION
12858	Holts Summit PD	03/27/2015

LOCATION OF INSTRUMENT (STREET AND CITY)	TIME OF INSPECTION
245 South Summit Dr Holts Summit	15:27 CDT

CHECKLIST: Place a mark in the box by each item if found to be satisfactory or is operating within established limits. (Write in observed values where determined). Unmarked items must be corrected before using instrument.

[X] **DIAGNOSTIC RECORD**

[X] BLANK CHECK	[X] CO2 CHECK
[X] FC 1 TEMP	[X] FLOW CHECK
[X] SRC TEMP	[X] FCB CHECK
[X] DET TEMP	[X] CRC COMP CHECK
[X] BT TEMP	[X] CRC CAL CHECK
[X] STD 2 TEMP	[X] PRINT TEST
[X] ETH CHECK	

BREATH ANALYZER ACCURACY STANDARDS

[ ] SIMULATOR SOLUTION	[X] COMPRESSED ETHANOL-GAS MIXTURE

[X] STANDARD SUPPLIER Intoximeters LOT# AG414702 EXP. DATE 05/27/2016

[ ] SIMULATOR TEMP (34°C ±0.2°C)	SIMULATOR S/N	SIMULATOR EXP DATE

[X] CALIBRATION CHECK - **(ONLY ONE STANDARD IS TO BE USED PER MAINTENANCE REPORT)**

Run three tests using a standard solution. All three tests must be within ±5% of the standard value and must have a spread of .005 or less. Mark the box corresponding to the standard solution being used. (PRINTOUT ATTACHED)

- [X] 0.10% STANDARD - MUST READ BETWEEN 0.095% AND 0.105% INCLUSIVE
- [ ] 0.08% STANDARD - MUST READ BETWEEN 0.076% AND 0.084% INCLUSIVE
- [ ] 0.04% STANDARD - MUST READ BETWEEN 0.038% AND 0.042% INCLUSIVE

TEST 1 0.098 g/210L	TEST 2 0.098 g/210L	TEST 3 0.098 g/210L

INDICATE THE NUMBER OF BREATH TESTS IN THE FOLLOWING RANGES SINCE THE LAST MAINTENANCE REPORT:

REFUSALS 1	0-.04 0	.05-.09 0	.10-.14 0	.15-.19 0	OVER .19 0

LIST ANY NEW PARTS AND DESCRIBE ANY ALTERATION OR MODIFICATION THAT WAS MADE TO RESTORE THE INSTRUMENT TO OPERATE SATISFACTORILY AND WITHIN ESTABLISHED LIMITS (USE OTHER SIDE IF NECESSARY).

INSPECTING OFFICER

SIGNATURE	PRINT FULL NAME
► Bryan Reid	REID, BRYAN

TYPE II PERMIT NUMBER	EXPIRATION DATE	TELEPHONE NUMBER
240316	07/30/2016	(573) 896-8431

RETURN COMPLETED REPORT TO THE:
Breath Alcohol Program, Missouri Department of Health and Senior Services,
Southeast District Office, 2875 James Blvd, Poplar Bluff, MO 63901

Airgas USA LLC (LAB)
3500 Bernard Street
St. Louis, Mo. 63103
Ph: (314) 533-3100
Fax: (314) 533-7328

Certificate of Analysis

Customer Name
Intoximeters, Inc.
2081 Craig Road
St. Louis, Mo 63146

Test Date: 30-May-2014

Lot # AG414702

Exp. Date	Cyl. Type	Component	Certified Concentration
27-May-2016	108	Ethanol	0.100 ± 2% BrAC (272 ppm)
		Nitrogen	Balance

Certification Traceable to N.I.S.T. RGM Ethanol Standards:

Serial No.	Concentration	Serial No.	Concentration
EB0010581	391.8 ppm	EB0010603	392.5 ppm
EB0010570	259.8 ppm	EB0010559	258.9 ppm
EB0010285	209.0 ppm	EB0010595	208.9 ppm
EB0010561	103.7 ppm	EB0010562	104.9 ppm
EB0010681	52.22 ppm	EB0010579	52.94 ppm

Analytical Method: NDIR

Analyst: Rod Marsala
Rod Marsala

ISO 17025:2005 A2LA accredited. Certificate Number 2989.01

U.S. Department of Commerce
National Institute of Standards and Technology
Material Measurement Laboratory
Chemical Sciences Division
Gaithersburg, MD 20899-8393

REPORT OF ANALYSIS

November 15, 2012

Recertification of Ten (50-400) µmol/mol Ethanol in Nitrogen RGM Standards
for Airgas Mid-America, St. Louis, MO

Submitted to:

Mr. Randy Renner
Airgas Mid-America
3500 Bernard Street
St. Louis, MO 63103

Job No.: 13010
P.O. No.: 4501370879

Airgas Mid-America (AMA) submitted ten reference gas material (RGM) standards (nominal 50 to 400 µmol/mol ethanol in nitrogen) to the National Institute of Standards and Technology (NIST) for recertification. These standards were analyzed in 2009 by gas chromatography / flame ionization detector (GC/FID). This analytical technique is difficult due to the tailing of the ethanol peak (especially at high concentration) in the gas chromatogram. To avoid this, NIST recently developed a Fourier transform infrared (FTIR) method to analyze ethanol, as described below. This new technique was used in a bilateral comparison of 120 µmol/mol ethanol (nitrogen balance) with the Dutch Metrology Institute (Von Schwinden Laboratories). The relative difference between the NIST and VSL-assigned concentrations was 0.12 % [1]. Consequently, these standards were analyzed by FTIR.

The current FTIR analyzed concentrations are within the expanded uncertainty limits of the 2009 certified values. However, since FTIR is a superior analytical technique over GC/FID (for ethanol), then the current analyzed values are a better reflection of the true ethanol concentrations of the samples. These samples are recertified at the current analyzed concentration as shown in table 1. The recertification of these RGM standards was in accordance with the Gas Metrology Group Quality Manual (QM-III-839.03), TP 839.03.11B.

The uncertainties in the certified concentrations are lower than those reported in the 2009 certificate and are expressed as an expanded uncertainty $U = ku_c$ with u_c estimated from the experimental standard deviations and the coverage factor k equal to 2. The true concentration is asserted to lie within the interval defined by the certified value ± U with a level of confidence of approximately 95 % [2].

Analytical Method

Ethanol Analysis: The ethanol (EtOH) component of each submitted sample was analyzed by Fourier Transform Infrared (FTIR) (Nicolet Model Nexus 670, NIST # 593134) equipped with a 10 meter (m) folding path, quartz gas cell (Specac, Model Cyclone 10C, NIST# 623477) with potassium bromide windows and a mercury-cadmium-telluride (MCT) detector.

Calibration

Two calibration curves were developed using the primary gas standards listed in table 2. One curve for the range 24 to 150 µmol/mol ethanol; the other for the range 150 to 440 µmol/mol. The lower curve was linear, the higher curve was quadratic.

Traceability

The instrument was calibrated using NIST primary gas standards which are prepared gravimetrically from pure gases, verified, and periodically compared internationally with other national metrology institutes' primary gas standards. This assures traceability to the SI for gas standards certified by NIST. See table 2 for a listing of the primary gas standards used.

Certification Period

These certified values are valid for a period of four (4) years from the date of the report. Consequently, the expiration date for these standards is 11/15/2016. This report serves as the NIST Certificate of Certification for these materials.

References:

1. Analysis of an Ethanol Gas Standard from VSL as a Bilateral Comparison: ROA # 639.03-11-045 [12/7/2010]
2. Guide to the Expression of Uncertainty, ISBN 92-67-10188-9, 1st Edition, ISO, Geneva, Switzerland, 1993.

Other References: Notebook: FTIR LG#2 [ACD # 3668]; pp. 1-6
Original RGM Standard Certification: ROA # 839.03-09-041[02/10/2009]

Prepared by:

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Leader,
Gas Metrology Group

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Chemical Sciences Division

Table 1: Recertification of AMA Ethanol in Nitrogen RGM Standards. The stated uncertainties are expanded (k =2).

Cylinder Number	2009 Analysis EtOH (µmol/mol)[a]	2012 Analysis EtOH (µmol/mol)[b]	Current Certified Conc. (µmol/mol)	Pressure (MPa)
EB0010579	52.4 ± 1.1	52.94 ± 0.70	52.94 ± 0.70	13.6
EB0010681	53.0 ± 1.1	52.22 ± 0.70	52.22 ± 0.70	13.6
EB0010562	104.9 ± 2.1	104.9 ± 1.3	104.9 ± 1.3	11.2
EB0010561	101.9 ± 2.1	103.7 ± 1.3	103.7 ± 1.3	13.6
EB0010595	209.2 ± 4.2	208.9 ± 2.5	208.9 ± 2.5	13.3
EB0010285	208.9 ± 4.2	209.0 ± 2.5	209.0 ± 2.5	13.6
EB0010559	258.3 ± 5.2	258.9 ± 3.2	258.9 ± 3.2	12.4
EB0010570	258.4 ± 5.2	259.8 ± 3.2	259.8 ± 3.2	13.6
EB0010603	390.9 ± 7.8	392.5 ± 5.0	392.5 ± 5.0	9.5
EB0010581	391.5 ± 7.8	391.8 ± 5.0	391.8 ± 5.0	9.3

[a] Original Certification (GC/FID)
[b] Current Analysis (FTIR)

Table 2: Ethanol in Nitrogen NIST Primary Gas Standards. The stated uncertainties are expanded (k = 2).

Cylinder Number	EtOH (µmol/mol)
AAL20661	24.06 ± 0.05
AAL20255	38.78 ± 0.08
ALM024319	54.95 ± 0.11
ALM040277	70.54 ± 0.14
ALM040295	100.7 ± 0.2
ALM009006	121.8 ± 0.2
ALM040288	149.0 ± 0.3
ALM040280	198.9 ± 0.4
ALM040287	251.1 ± 0.5
ALM040284	318.6 ± 0.6
ALM040278	441.7 ± 0.9

STATE OF MISSOURI

DEPARTMENT OF HEALTH AND SENIOR SERVICES

BREATH ALCOHOL PROGRAM

2

PERMIT

TYPE II

BRYAN J REID

is hereby authorized to instruct and supervise operators, train instructors, inspect, calibrate, perform field service and repairs, and operate the following breath analyzer(s):

DATAMASTER, INTOX EC/IR II

for the determination of the alcoholic content of blood from a sample of expired air. Permit issued under the provisions of sections 577.020 through 577.041, RSMo and 306.111 through 306.119 RSMo.

DATE 7/30/2014

NUMBER 240316

EXPIRES 7/30/2016

DIRECTOR OF STATE PUBLIC HEALTH LABORATORY

DIRECTOR OF DEPARTMENT OF HEALTH AND SENIOR SERVICES

MO 580-0771 (6-10)

LAB-4 (R6-10)

STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES
BREATH ALCOHOL PROGRAM

INSTRUMENT OPERATOR CARD

The named cardholder is authorized to operate an evidential breath alcohol instrument for the determination of the alcoholic content in breath form of expired air in Missouri.

Operator REID, BRYAN
Permit No 240316
Date Issued 7/30/2014 **Date Expires** 7/30/2016